In vitro screening of *Strychnos* species for antiplasmodial activity

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Among the four species of malarial parasites which infect humans, *Plasmodium falciparum* is responsible for the most severe cases. Nowadays, the increasing resistance of this parasite against the most widely used antimalarial drugs makes it urgent to find alternative compounds (**1**).

In consideration of the many biological properties of alkaloids, and particularly of quinine (which remains an important antimalarial drug), it was not surprising that a series of indolomonoterpenic alkaloids, mainly isolated from *Strychnos usambarensis* Gilg and from *Strychnos icaja* Baill., the latter used in traditional medicine from Central Africa to treat chronic malaria, present antiplasmodial properties (**2**). Therefore, these plants, both of which contain a complex mixture of these indolomonoterpenic alkaloids, were subjected as well as other species of *Strychnos* to a first screening and were the most active against *P. falciparum* (**3**).

Recently, a new screening was carried out on thirteen *Strychnos* species; methanolic and EtOAc extracts were tested *in vitro* against a chloroquine-susceptible line of *P. falciparum* which was cultivated according to the procedure of Trager and Jensen (**4**). The assays were performed as described by Desjardin *et al.* (**5**) and modified by Mirovsky *et al.* (**6**). No species seemed as active as *S. icaja* (IC_{50} about 0.3 µg/ml for EtOAc extract of roots) and *S. usambarensis* (IC_{50} about 0.5 µg/ml for EtOAc extract of roots). However, four other species could be interesting for further investigations: *S. gossweileri* Exell, *S. henningsii* Gilg, *S. mellodora* S. Moore and especially *S. variabilis* De Wild. (IC_{50} about 2.5 µg/ml for EtOAc extract of roots).

References:

(1) Ridley R.G., Nature, 2002, **415** , 686-693

(2) Frédérich M., Jacquier M.-J, Thépenier P., De Mol P., Tits M., Philippe G., Delaude C., Angenot L., and Zèches-Hanrot M., Journal of Natural Products, 2002, **65**, 1381-1386

(3) Frédérich M., Hayette M.-P., Tits M., De Mol P., and Angenot L., Antimicrobial Agents and Chemotherapy, 1999, **43**, 2328-2331

(4) Trager W. and Jensen J.B., Science, 1976, **190**, 792-794

(5) Desjardins R.E., Canfield C.J., Haynes D., and Chulay J.D., Antimicrobial Agents and Chemotherapy, 1979, **16**, 710-718

(6) Mirovsky P., Gay F., Bustos D., Mazier D., and Gentilini M., Transactions of the Royal Society of Tropical Medicine and Hygiene, 1990, **84**, 511-515